

Notes - Finding Solutions by Graphing

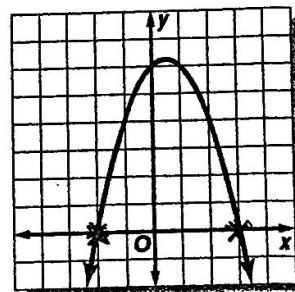
Solutions = x-intercepts (where the graph crosses the x-axis)

They are also called roots or

zeros because they happen where $y=0$.

Example of finding solutions by graphing:

The graph of the quadratic function $f(x) = -x^2 + x + 6$ is shown at the right. Use the graph to find the solutions of the quadratic equation $-x^2 + x + 6 = 0$.

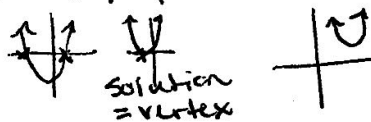


Just find the x-intercepts!

The solutions are $(-2, 0)$ and $(3, 0)$

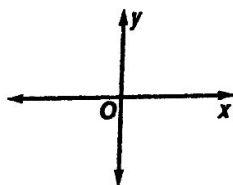
You could also write this as $x = -2, 3$
but NOT $(-2, 3)$

■ Quadratic functions can have 2, 1, or no real solutions

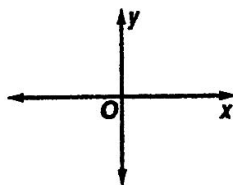


Sketch a graph to illustrate each situation.

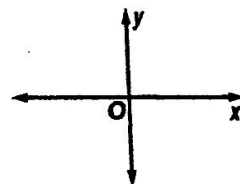
- a. A parabola that opens downward and represents a quadratic function with two real zeros, both of which are negative numbers.



- b. A parabola that opens upward and represents a quadratic function with exactly one real zero. The zero is a positive number.



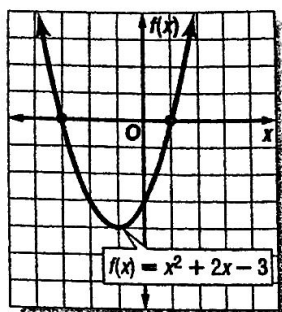
- c. A parabola that opens downward and represents a quadratic function with no real zeros.



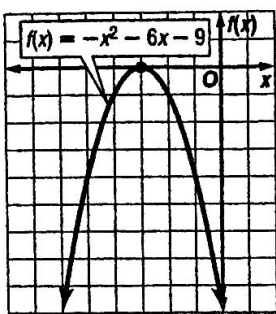
Solving Quadratic Equations By Graphing

Use the related graph of each equation to determine its solutions.

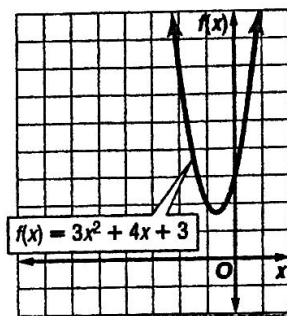
1. $x^2 + 2x - 3 = 0$



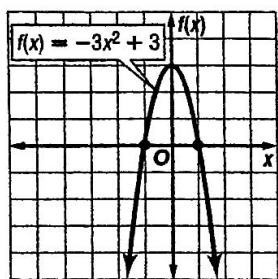
2. $-x^2 - 6x - 9 = 0$



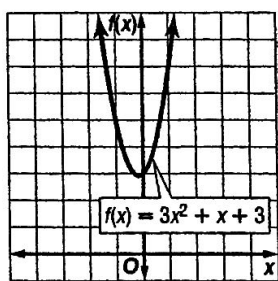
3. $3x^2 + 4x + 3 = 0$



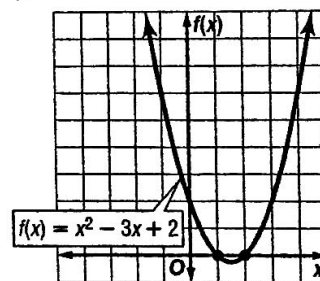
4. $-3x^2 + 3 = 0$



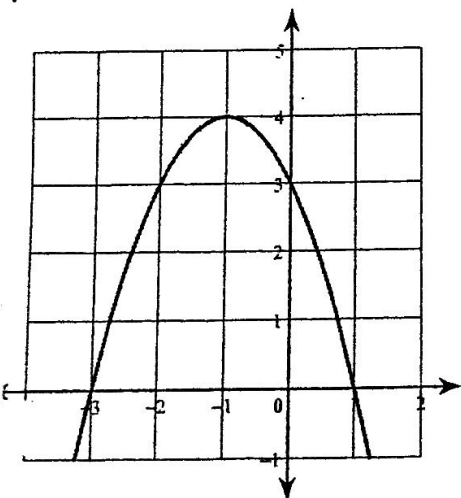
5. $3x^2 + x + 3 = 0$



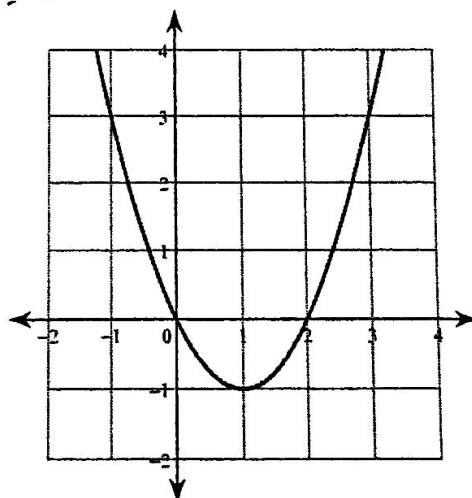
6. $x^2 - 3x + 2 = 0$



7.



8.



9.

